What is claimed is:

1. A spin filter apparatus for cleaning an influent stream, the apparatus comprising:

a housing having at least one inlet port for receiving the influent stream, at least one waste port for discharging waste and at least one output port for discharging a processed clean effluent stream;

a discharge conduit coupled to the at least one outlet port for discharging the processed clean effluent stream; and

a spin filter assembly disposed within the housing and including a filter screen set formed of at least two screen filters that are rotatable about the discharge conduit and freely movable in a vertical direction along the discharge conduit, the screen set being coupled to a magnetic shaft that permits the screen set to be a free floating structure that is movable in the vertical direction due to a magnetic field generated between the magnetic shaft and a first magnetic element disposed in the housing that permits the screen set to be controllably and selectively moved in the vertical direction as the screen set rotates such that the influent stream is cleaned by passing through the screen set which results in creation of a first flow made up at least partially of the waste and which flows in one direction towards the at least one waste port and a second flow made up of the processed clean effluent stream that flows in another direction and is received within the discharge conduit where it is then withdrawn from the housing through the at least one outlet port.

2. The spin filter apparatus of claim 1, wherein the housing comprises a tank having a first cylindrically shaped section and a second frusto-conically shaped section, the at least one outlet port being associated with the first section and the at least one waste port being associated with the second section and wherein the at least one inlet port is formed in a side wall of the tank.

3. The spin filter apparatus of claim 1, wherein the discharge conduit comprises a tubular member formed of an insulating material.

4. The spin filter apparatus of claim 1, wherein the housing includes a top lid that seals one end of the housing and is coupled to the discharge conduit, the top lid having a first opening that is axially aligned with a bore formed through the discharge conduit so that the processed clean effluent can be discharged from the housing.

5. The spin filter apparatus of claim 4, wherein the top lid includes one or more sealed through holes for receiving signal carrier members therethrough.

6. The spin filter apparatus of claim 4, further including:

a collar securely attached to an inner surface of the tank lid and axially aligned with the first opening, the discharge conduit being securely attached to the collar such that the bore is axially aligned with the first opening.

7. The spin filter apparatus of claim 4, further including:

a LYTIC assembly including a first insulating spacer disposed around the discharge conduit proximate an inner surface of the top lid, a first conductive slip ring disposed adjacent the first insulating spacer, a second conductive slip ring spaced from the first conductive slip ring with a biasing element being disposed therebetween and applying a biasing force against the first and second conductive slip rings, the second conductive slip ring being electrically connected to one of the filter screens for delivering a LYTIC drive signal thereto, wherein each of the first and second conductive slip rings and the biasing element is disposed around the discharge conduit and is movable linearly therealong.

8. The spin filter apparatus of claim 7, further including:

a second insulating spacer disposed between the second conductive slip ring and the screen set for insulating the screen set from direct contact with the second conductive slip ring.

9. The spin filter apparatus of claim 1, wherein the screen set comprises:

an inner screen;

an insulating spacer disposed around the inner screen; and

an outer conductive screen disposed around the inner screen and electrically isolated therefrom by the insulating spacer, the outer conductive screen being constructed to block finer sized particles compared to the inner screen so that

influent to be cleaned passes first through the outer screen as it flows to an interior space of the screen set where one open end of the discharge conduit is disposed.

10. The spin filter apparatus of claim 9, wherein the outer screen comprises a wire screen of mesh 200 x 600 and the inner screen is a stainless steel quarter inch perforation screen.

11. The spin filter apparatus of claim 9, wherein the insulating spacer has a thickness less than 50 microns but of sufficient thickness so that the outer and inner screens are electrically isolated from one another.

12. The spin filter apparatus of claim 9, wherein a height of the outer screen is less than the heights of the insulating screen and the inner screen such that upper and lower edges of the outer screen are indented relative to the insulating screen and the inner screen.

13. The spin filter apparatus of claim 7, further including:

a first screen disk; and

a second screen disk with the screen set being disposed therebetween and fixedly attached thereto so that the first screen disk, the screen set, and the second screen disk rotates as a unit, the LYTIC assembly being disposed between the first screen disk and the top lid.

14. The spin filter apparatus of claim 13, wherein the screen set comprises:

an inner screen;

an insulating spacer disposed around the inner screen; and

an outer conductive screen disposed around the inner screen and electrically isolated therefrom by the insulating spacer, the outer conductivity screen being constructed to block finer sized particles compared to the inner screen so that influent to be cleaned passes first through the outer screen as it flows to an interior space of the screen set where one open end of the discharge conduit is disposed, wherein the outer conductive screen is electrically connected to the LYTIC assembly such that an electric signal can be delivered thereto through the LYTIC assembly.

15. The spin filter apparatus of claim 14, wherein the outer conductive screen is connected to one end of a conductive member that is connected at its other end to the second conductive slip ring, the electric signal being an electric charge of a high frequency, high voltage, the inner screen acting as an earth ground reference that is insulated from the outer conductive screen so that an electric potential is created between the inner and outer screens.

16. The spin filter apparatus of claim 15, wherein the second conductive slip ring is spaced from and insulated from the first screen disk by a second insulating spacer that is disposed therebetween, the second insulating spacer being

fixedly mounted to the first screen disk so that the two rotate are rotatable as a single unit.

17. The spin filter apparatus of claim 15, further including:

top and bottom bearings for supporting the spin filter assembly while permitting free rotation of the screen set, the top bearing being mounted to the first screen disk and the bottom bearing being mounted to the second screen disk.

18. The spin filter apparatus of claim 17, wherein the discharge conduit is disposed at least partially within a bore formed through the top bearing and is in intimate contact therewith such that linear movement of the screen set along the discharge conduit is permitted, the linear movement of the screen set in a first direction toward the top lid causing the second insulating spacer to move linearly along the discharge conduit such that the biasing element stores additional energy and a distance between the first and second conductive slip rings decreases and linear movement of the screen set in an opposite second direction causes the biasing element to release energy and the second insulating spacer and second conductive slip ring to move away from the first conductive slip ring.

19. The spin filter apparatus of claim 17, wherein the bottom bearing is non-rotatably fixed to a support structure however the second screen disk is fixedly mounted to the bottom bearing in a manner in which the second screen disk is free to rotate relative to the bottom bearing.

20. The spin filter apparatus of claim 19, wherein the bottom bearing has a bore extending therethrough which receives the magnetic shaft in an intimate manner, while permitting the magnetic shaft to move linearly within the bore.

21. The spin filter apparatus of claim 1, wherein the magnetic shaft has a first permanent magnet disposed at a distal end thereof and the first magnetic element comprises a second permanent magnet spaced from the first permanent magnet, the first and second permanent magnets being oriented in equal polarity types such that the magnetic field is generated therebetween and the magnetic shaft magnetically floats the entire screen set on the magnetic field.

22. The spin filter apparatus of claim 21, further including:

means for varying the strength of the magnetic field so as to linearly influence the position of the magnetic shaft, thereby permitting linear movement of the screen set at the same time that the screen set is rotating.

23. The spin filter apparatus of claim 22, wherein the means includes a device for sending signals to a modulating coil that is disposed around the second permanent magnet for altering the strength of the magnetic field.

24. The spin filter apparatus of claim 23, wherein the signals are applied current signals delivered to the modulating coil to cause either a total increase

or decrease of the magnetic field that floats the screen set, whereby the change in magnetic field is translated into linear movement of the screen set about and along the discharge conduit.

25. The spin filter apparatus of claim 1, further including:

means for altering a flow path of the entering influent stream such that a total input pressure associated with the stream is generally averaged, the means including a member that is disposed between the housing and the screen set.

26. The spin filter apparatus of claim 25, wherein the member is an open ended averaging tube that is fixedly mounted to an interior of the housing with the screen set being disposed within an interior of the averaging tube, the averaging tube having features formed on an outer surface thereof for collecting particles.

27. The spin filter apparatus of claim 26, wherein the features comprise a set of the V-shaped structures that protrude outwardly from the outer surface and are arranged so that they open upwardly toward an upper end of the tube and a second set of V-shaped structures that protrude outwardly from the outer surface and are arranged so that they open downwardly toward a lower end of the tube, the first set collecting particles that are denser than the liquid influent and the second set collecting particles that are less dense than the liquid influent.

28. The spin filter apparatus of claim 1, further including:

means for subsonically and ultrasonically vibrating the influent stream to promote compacting of particles within the influent stream such that the particles are more easily collected.

29. The spin filter apparatus of claim 28, further including:

means for subsonically and ultrasonically vibrating the influent stream to promote compacting of particles within the influent stream, the vibrating means being fixedly coupled to the averaging tube.

30. The spin filter apparatus of claim 1, further including:

a central controller for controlling the rotation and the movement of the screen set in the vertical direction.

31. The spin filter apparatus of claim 1, further including:

an electric motor operatively coupled to the screen set for causing selective rotation thereof.

32. The spin filter apparatus of claim 31, wherein the electric motor is disposed on an exterior face of a top lid of the housing and includes a rotatable shaft that is sealingly received through an opening formed in the top lid and a distal end of the shaft includes a first gear that meshes with a second gear that is associated with the spin filter assembly so that rotation of the shaft is translated into rotation of the screen set.

33. The spin filter apparatus of claim 32, wherein the electric motor is of a type where the shaft is rotatable in two directions.

34. The spin filter apparatus of claim 33, wherein the electric motor is communication with a controller that sends drive signals to the electric motor for selectively causing rotation of the screen set according to a signal waveform.

35. The spin filter apparatus of claim 34, wherein the signal waveform is of a type that the rotation is modulated to increase speed clockwise at a sine rate for one half time period and then decelerate for an equal time period which represents a first cycle that is repeated in succession before the shaft is rotated in the opposite direction with a polarity reversal of the same signal waveform.

36. The spin filter apparatus of claim 1, further including:

an influent control system having at least one programmable valve for selectively starting and stopping the flow of the influent stream.

37. The spin filter apparatus of claim 1, further including:

an influent pre-chamber in fluid communication with the at least one inlet port and including at least one large mesh screen and strong magnets for blocking large pieces of waste in the influent stream and to capture ferrous materials.

38. A spin filter apparatus for cleaning an influent stream, the apparatus comprising:

a housing having at least one inlet port for receiving the influent stream, at least one waste port for discharging waste and at least one output port for discharging a processed clean effluent stream;

a discharge conduit coupled to the at least one outlet port for discharging the processed clean effluent stream; and

a spin filter assembly disposed within the housing and including a filter screen set formed of at least two screen filters that are freely rotatable about the discharge conduit;

magnetic means associated with the spin filter assembly for causing the screen set to be a free floating structure that is movable in a linear direction about the discharge conduit due to influence of a magnetic field while still being freely rotatable about the discharge conduit; and

wherein the rotation and linear movement of the spin filter assembly facilitates the influent stream in being cleaned by passing through the screen set which results in the formation of a first flow made up at least partially of the waste and which flows in one direction towards the at least one waste port and a second flow made up of the processed clean effluent stream that flows in another direction and is received within the discharge conduit where it is then withdrawn from the housing through the at least one outlet port.

39. The spin filter apparatus of claim 38, further including:

means for creating an electric potential between an outermost screen and an innermost screen of the screen set.

40. The spin filter apparatus of claim 39, wherein the means for creating the electric potential includes a first electrical pathway between a high voltage source and the outermost screen with the innermost screen serving as an earth ground reference.

41. The spin filter apparatus of claim 38, wherein the spin filter assembly includes rotatable first and second screen disks with the filter screen set being disposed between the first and second screen disks and fixedly mounted thereto, the screen set including an inner screen, an insulating spacer disposed around the inner screen and an outer conductive screen disposed around the inner screen and electrically isolated therefrom by the insulating spacer, the outer conductive screen being constructed to block finer sized particles compared to the inner screen so that influent to be cleaned passes first through the outer screen as it flows to an interior space of the screen set where one open end of the discharge conduit is disposed.

42. The spin filter apparatus of claim 38, wherein the spin filter assembly is coupled to a first linear bearing that intimately receives a portion of the discharge conduit in a sliding manner and a second linear bearing that receives a magnetic shaft that is part of the magnetic means and is intimately received within a bore of the second linear bearing in a sliding manner.

43. The spin filter apparatus of claim 42, wherein the magnetic means includes a first permanent magnet disposed at a distal end of the magnetic shaft that is received within the bore of the second linear bearing and a second permanent magnet that is disposed in a fixed position relative to the second linear bearing and proximate the bore of the second linear bearing so that the magnetic field is created between the first and second permanent magnets.

44. The spin filter apparatus of claim 43, wherein the first and second permanent magnets are oriented in equal polarity types such that the two repel one another causing the magnetic shaft to magnetically float the entire screen set on the magnetic field.

45. The spin filter apparatus of claim 43, further including:

means for varying the strength of the magnetic field so as to linearly influence the position of the magnetic shaft, thereby permitting linear movement of the screen set at the same time that the screen set is rotating.

46. The spin filter assembly of claim 45, wherein the means for varying the strength of the magnetic field includes a device for sending signals to a modulating coil that is disposed around the second permanent magnet for altering the strength of the magnetic field.

47. The spin filter assembly of claim 46, wherein the signals are applied current signals delivered to the modulating coil to cause either a total increase or decrease of the magnetic field that floats the screen set, whereby the change in the magnetic field is translated into linear movement of the screen set about and along the discharge conduit.

48. The spin filter assembly of claim 38, wherein the screen set is constructed so as to block particles of sizes greater than 30 micrometers.

49. The spin filter assembly of claim 38, wherein the screen set is constructed so as to block particles of sizes greater than 5 micrometers.

50. A method of filtering an influent stream by separating particles therefrom comprising the steps of:

introducing the influent stream into a spin filter assembly that includes a housing having at least one inlet port for receiving the influent stream and a discharge conduit coupled to at least one outlet port for discharging processed clean effluent stream, a filter screen set disposed in the housing and formed of at least two screen filters that are freely rotatable about the discharge conduit, and magnetic means associated with the spin filter assembly for causing the screen set to be a free floating structure that is movable in a linear direction about the discharge conduit due to influence of a magnetic field while still being freely rotatable about the discharge conduit;

rotating the screen set at a predetermined speed and predetermined direction;

selectively moving the screen set in a linear direction along the discharge conduit by forming and varying the strength of the magnetic field that floats the screen set as it rotates; and

withdrawing the processed clean effluent stream through the discharge conduit after it has passed through the screen set and waste particles have been separated therefrom.

51. The method of claim 50, further including the steps of:

applying a high frequency, high voltage signal to an outermost screen of the screen set;

connecting an innermost screen of the screen set to earth ground; and

electrically isolating the innermost and outermost screens so that an electric potential is created therebetween for providing an electric cleaning process, whereby particles that may become entangled with the screen set or disposed between the innermost and outermost screens are destroyed.

52. The method of claim 50, wherein the step of selectively moving the screen set in a linear direction comprises the steps of:

applying an electric current to at least one component of the magnetic means so as to cause a total increase or decrease of the magnetic field used to float the screen set resulting in linear movement of the screen set.

53. The method of claim 50, further including the step of:

modulating the water subsonically or ultrasonically to cause liquid acoustic cavitation at a surface of the screen set.

54. A spin filter apparatus for cleaning an influent stream, the apparatus comprising:

a housing having at least one inlet port for receiving the influent stream, at least one waste port for discharging waste and at least one output port for discharging a processed clean effluent stream;

a discharge conduit coupled to the at least one outlet port for discharging the processed clean effluent stream; and

a spin filter assembly disposed within the housing and including a filter screen set formed of at least two screen filters that are freely rotatable about the discharge conduit;

magnetic means associated with the spin filter assembly for causing the screen set to be a free floating structure that is movable in a direction perpendicular to the direction of rotation and about the discharge conduit due to influence of a magnetic field while still being freely rotatable about the discharge conduit; and

wherein the rotation and perpendicular movement of the spin filter assembly provides two different cleaning operations resulting in the influent stream being cleaned by passing through the screen set to form a first flow made up at least partially of the waste and which flows in one direction towards the at least one waste

port and a second flow made up of the processed clean effluent stream that flows in another direction and is received within the discharge conduit where it is then withdrawn from the housing through the at least one outlet port.